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Soda	from	+ 0 ^o ·4	to	+ 0 ^o ·14
Ammonia	„	+ 0 ^o ·72	„	+ 0 ^o ·73
Manganese	„	+ 1 ^o ·04	„	+ 1 ^o ·15
Proto-salts of iron	„	+ 1 ^o ·58	„	+ 1 ^o ·63
Zinc	„	+ 1 ^o ·71	„	+ 1 ^o ·82
Mercury	„	+ 1 ^o ·81	„	+ 1 ^o ·89
Lead	„	+ 2 ^o ·77	„	+ 2 ^o ·90
Copper	„	+ 2 ^o ·90	„	+ 3 ^o ·18
Silver	„	+ 3 ^o ·90	„	+ 3 ^o ·94
Sesquisalts of iron	„	+ 4 ^o ·25	„	+ 4 ^o ·28

The differences in the results of experiments with different acids, the author observes, are not greater than usually occur in chemical reactions, in consequence of the uncertainty that exists with regard to the accurate proportions of chemical equivalents. He points out various circumstances in experiments of this nature, which tend to affect the results and lead to inaccurate conclusions, if care be not taken to guard against these sources of error. One of the principal of these is the heat which is generally evolved by the separation of a base, or new compound, in a solid form : and the author discusses the influence of this change on the results deduced from his experiments. He considers that these experiments sufficiently establish the general principle announced in the beginning of his paper.

A supplementary note is added on the determination of the Specific Heat of Fluids.

The Society then adjourned over the Christmas recess, to meet again on the 11th of January, 1844.

January 11, 1844.

The MARQUIS OF NORTHAMPTON, President, in the Chair.

“An Account of a slight Shock of an Earthquake felt in the Channel Islands.” By J. Elliott Hoskins, M.D., F.R.S.: in a Letter to P. M. Roget, M.D., Sec. R.S., &c. Communicated by Dr. Roget.

The phenomena described in this letter occurred simultaneously in Jersey, Guernsey, Alderney, Serk, Herne, and Jethore. On Friday, the 22nd of December, at seven minutes before 4 p.m., a noise resembling a distant thunder-clap was heard ; this was immediately followed by sounds as of a railroad carriage rumbling over an irregular metallic surface ; it was accompanied by distinct undulatory motion. This again was succeeded by a shock ; the whole lasting from 10 to 15 seconds. The barometer was uninfluenced, standing at 30·354 : a light wind prevailed, varying from S.S.E. to S.S.W. During the whole of the month the air had been peculiarly still, and the barometer uniformly high ; the maximum, up to the above date, having been 30·518, the minimum 30·042. The thermometer had ranged throughout the month, from 47° to 52° during the day, and from 45° to 49° during the night.

Hundreds of persons agree as to having experienced a distinct shock, their impressions varying according to the positions occupied by the observers. Those inhabiting the solid granite structures of the lower town conceived that heavy masses of furniture were overturned and moved in the apartments above or below them: they were not, however, so conscious of vibratory motion as those in the less substantial houses of the upper part of the town, or as those in the open air. In many houses, this vibratory motion was so violent as to cause much alarm, and was accompanied by crashing sounds, as though roofs and chimneys were falling; in some instances, chimney-pots were thrown down; suspended lamps were observed to wave; bells rang spontaneously; the vane of the town church waved, and one of its bells struck twice.

Persons in the open air were sensible of an undulatory motion, tending from the S.W., which occasioned unsteadiness of footing, and in some cases a transient feeling of nausea. A steam-engine in the Serk mines was remarked to suspend one out of its usual five strokes per minute; the engineer was alarmed lest this should be a precursor of bursting of the boiler. The massive granite works of St. Sampson's quay were so shaken, that glass vessels situated on various parts were thrown off. Two gentlemen engaged in Daguerreotype experiments on the ramparts of a fortification founded on a solid granite rock, felt the whole to vibrate. The crews of sailing-vessels beating up in the "roads," also felt the shock; those below rushing on deck under the impression that the vessels had struck on a rock.

The testimony of a great number of witnesses leaves no doubt as to the distinctness and strength of the shock. It was also felt, though in a slighter degree, in the neighbourhood of St. Malo, and near Brixham in Devonshire.

January 18, 1844.

SIR J. W. LUBBOCK, Bart., V.P., in the Chair.

"On a new Method of Analysis." By George Boole, Esq. Communicated by S. Hunter Christie, Esq., Sec. R.S., &c.

The purport of this paper is to exhibit a new form of analysis, and to found upon it a new theory of Linear Differential Equations, and of Generating Functions. The peculiarity in the form of the analysis consists in the linear differential equation, instead of being represented, as it has hitherto been, under the type

$$X_0 \frac{d^n u}{dx^n} + X_1 \frac{d^{n-1} u}{dx^{n-1}} + \dots + X_n u = X,$$

X_0 , X_1 , &c. being functions of the independent variable x , being exhibited in the form

$$f_0(D)u + f_1(D)\varepsilon^\theta u + \dots + f_s(D)\varepsilon^{\theta s} u = U;$$

in which $\varepsilon^\theta = x$, and $f_0(D)$, $f_1(D)$, &c. imply functional combina-